APPENDIX D

Ground Water Resources

TABLE OF CONTENTS

GROUND WATER RESOURCES GRAPHICS ..... D-l

INDIVIDUAL PERMIT ALLOCATIONS D-11

CONSUMPTIVE USE PERMITTING PROGRAM SPECIALLY DESIGNATED AREAS D-13

REFERENCES CITED D-15

LIST OF TABLES

Table D-l. Temporal and Physical Relationship Between Major Aquifer Systems in the Upper East Coast Planning Area ..... D-l

Table D-2. Individual Permit Allocations in the UEC Planning Area D-11

LIST OF FIGURES

Figure D-l. Stratigraphic Cross Section through the UEC Planning Area ... D-2

Figure D-2. Thickness of the Surficial Aquifer System D-3

Figure D-3. Elevation of the Top of the Upper Confining Unit of the Floridan Aquifer D-4

Figure D-4. Thickness of the Upper Confining Unit of the Floridan Aquifer D-5

Figure D-5. Elevation of the Top of the Floridan Aquifer System D-6

Figure D-6. Elevation of the Unconformity Between the Suwannee Formation and the Ocala Group D-7

Figure D-7. Elevation of the Unconformity Between the Ocala Group and the Avon Park Formation D-8

Figure D-8. Transmissivity of the Upper Floridan Aquifer D-9

Figure D-9. Elevation of the Top of the Lower Floridan Producing Zone 1 ..... D-10

Figure D-10, Consumptive Use Permitting Program Specially Designated Areas in the UEC Planning Area D-13

Ground Water Resources Graphics

Table D-l. Temporal and Physical Relationship Between Maior Aquifer Systems in the Upper East Coast Planning, Area.

AGE ESTIMATES OF BOUNDARIES (MYBP)	SERIES	STRATIGRAPHIC UNITS	HYDROGEOLOGIC UNITS: SYSTEMS OR UNITS		SUBUNITS OR FLOW ZONES
	Holocene	Pamlico Sands	rficial Aquifer System 90'–200' thick	Water Table Aquifer	Surficial Sands
-0.01	Pleistocene	Ft. Thompson Formation (West) / Anastasia Formation (East)			Primary Water Producing Zone
3.2	Pliocene	Caloosahatchee Marl			Non-Production Zone
5	Upper Miocene	Tamiami Formation	ntermediate Confining Unit 450'–650' thick	Upper Confining Unit for the Floridan Aquifer	N/A
	Miocene	Hawthorn Group			
25	Oligocene	Suwannee Limestone	Floridan Aquifer System FAS) 2800'–3400' thick	Upper Floridan Aquifer	First Continuous Flow Zone
37	Upper Eocene	Ocala Group			Vorious Flow Zones
	Middle Eocene	Avon Park Limestone			Second Continuous Flow Zone
				Middle Semi-Confining Unit	(Several Permeable Zones)
		Lake City Limestone		Lower Floridan Aquifer (LFA)	*ULFA: Producing Zone; Semi-Confining Unit; Producing Zone
	Lower Eocene	Oldsmar Limestone			Lower Confining Un
58					Boulder Zone
	Paleocene	Cedar Keys Limestone		Confining Unit for Base of FAS	

*ULFA = Upper part of the Lower Floridan Aqulfar

MYBP = Million years before present.

= Location of FAS Continuous Flow Zones.

Dates are referenced to Decade of North American Geology Geologic Time Scale (Geologic 9–83).

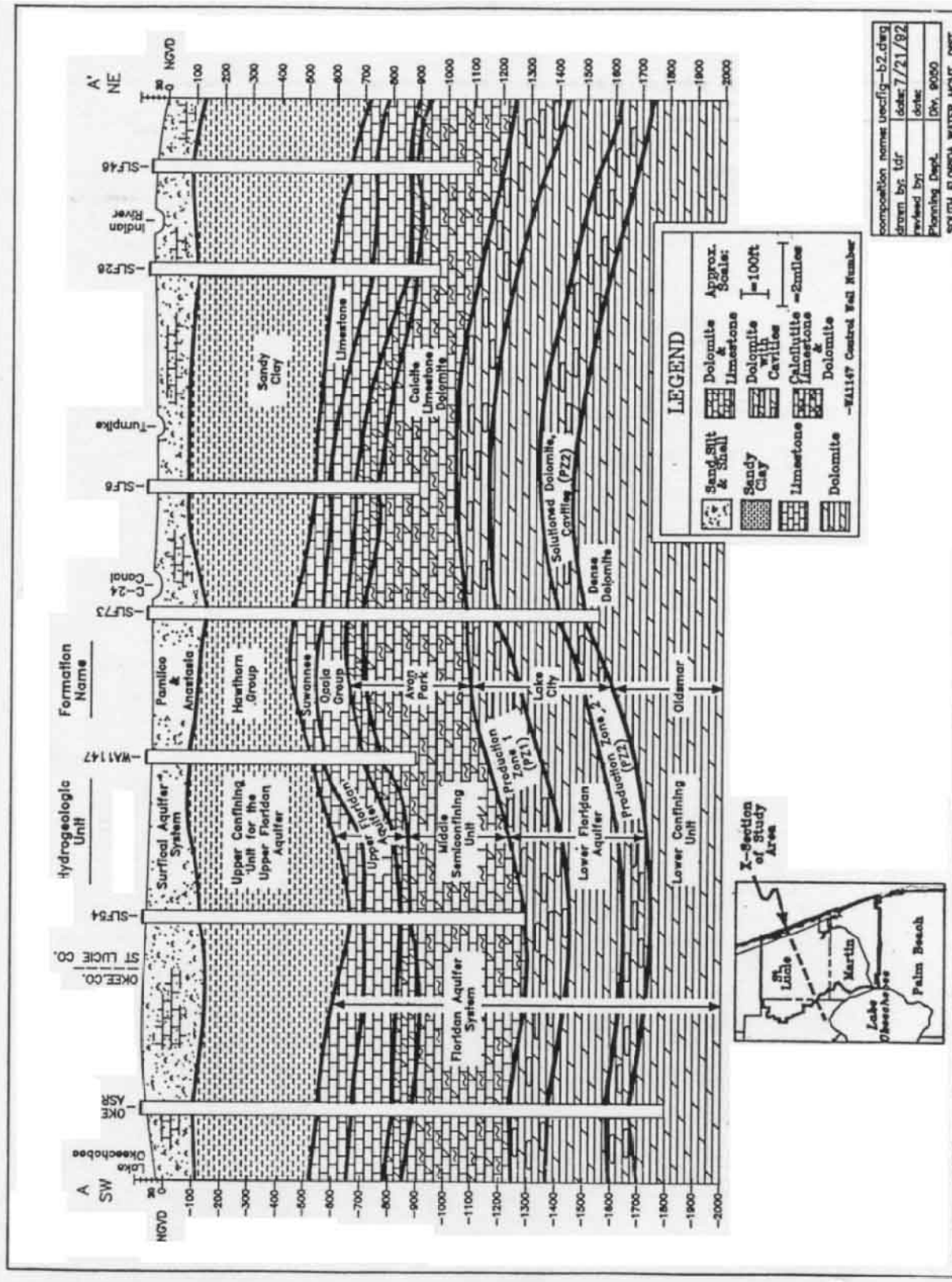


FIGURE D-1. Stratigraphic Cross Section through the UEC Planning Area (After Lukasiewicz, 1992).

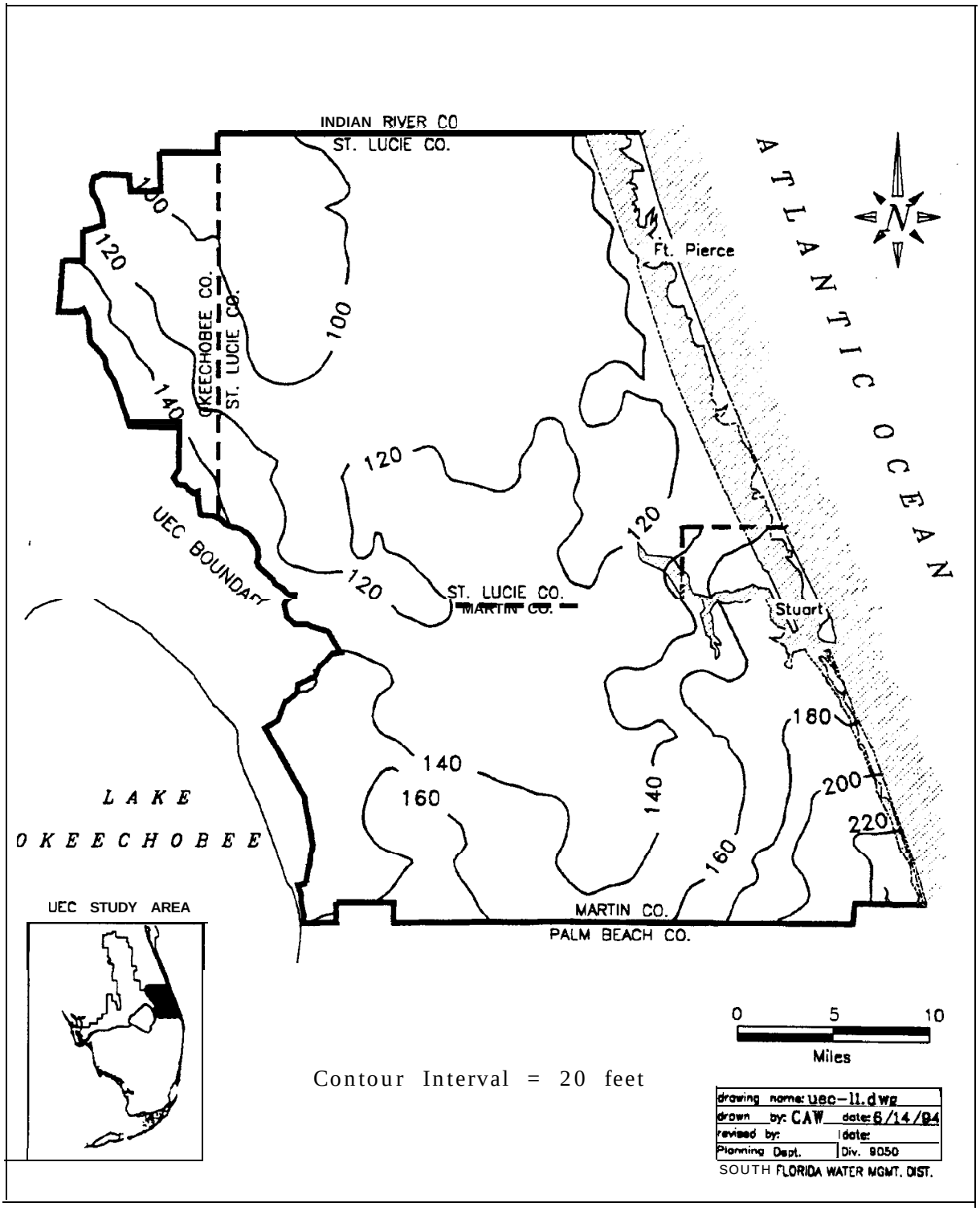


FIGURE D-2. Thickness (in feet) of the Surficial Aquifer System (After Lukasiewicz, 1992).

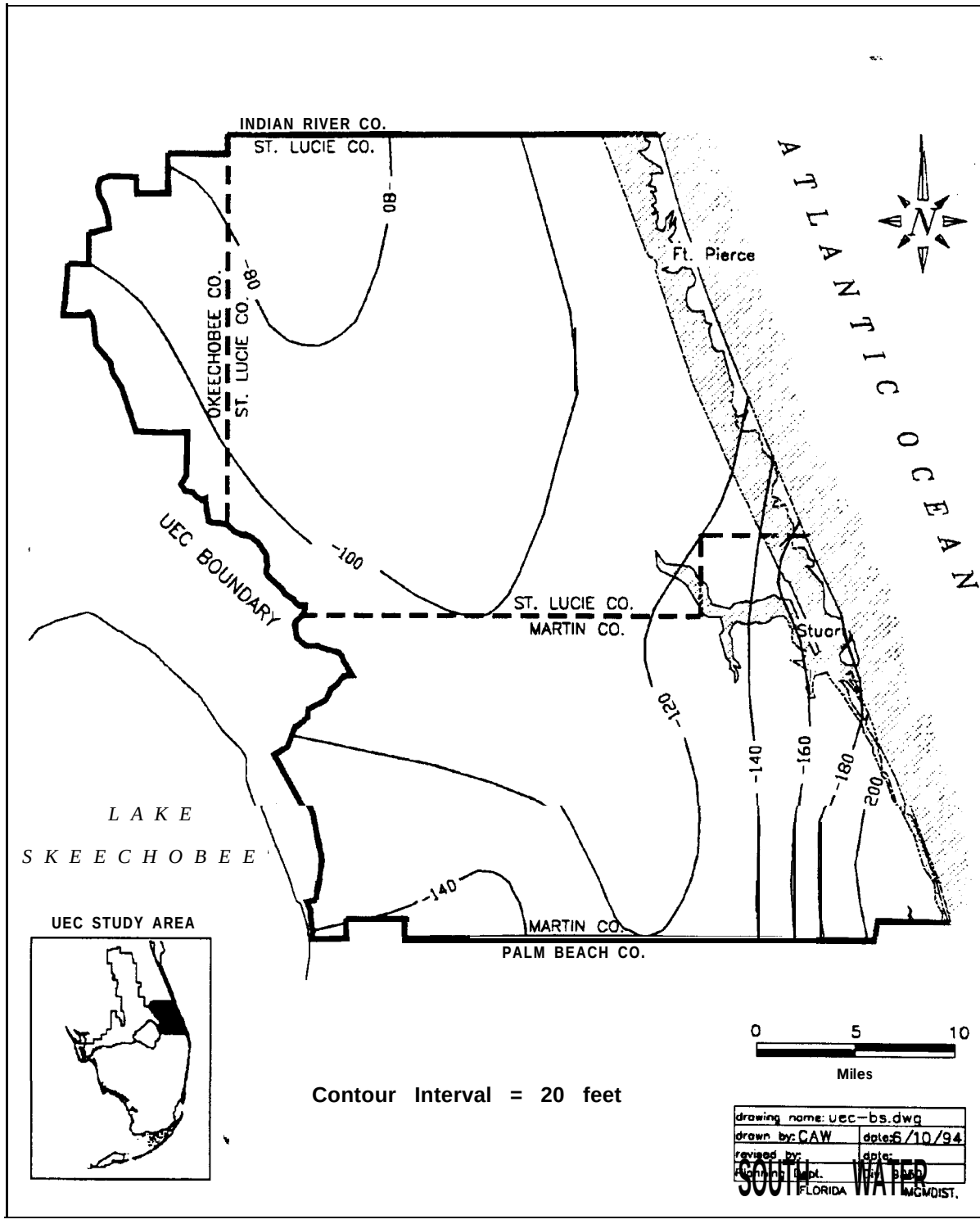


FIGURE D-3. Elevation (in feet NGVD) of the Top of the Upper Confining Unit of the **Floridan** Aquifer System (After Lukasiewicz, 1992).

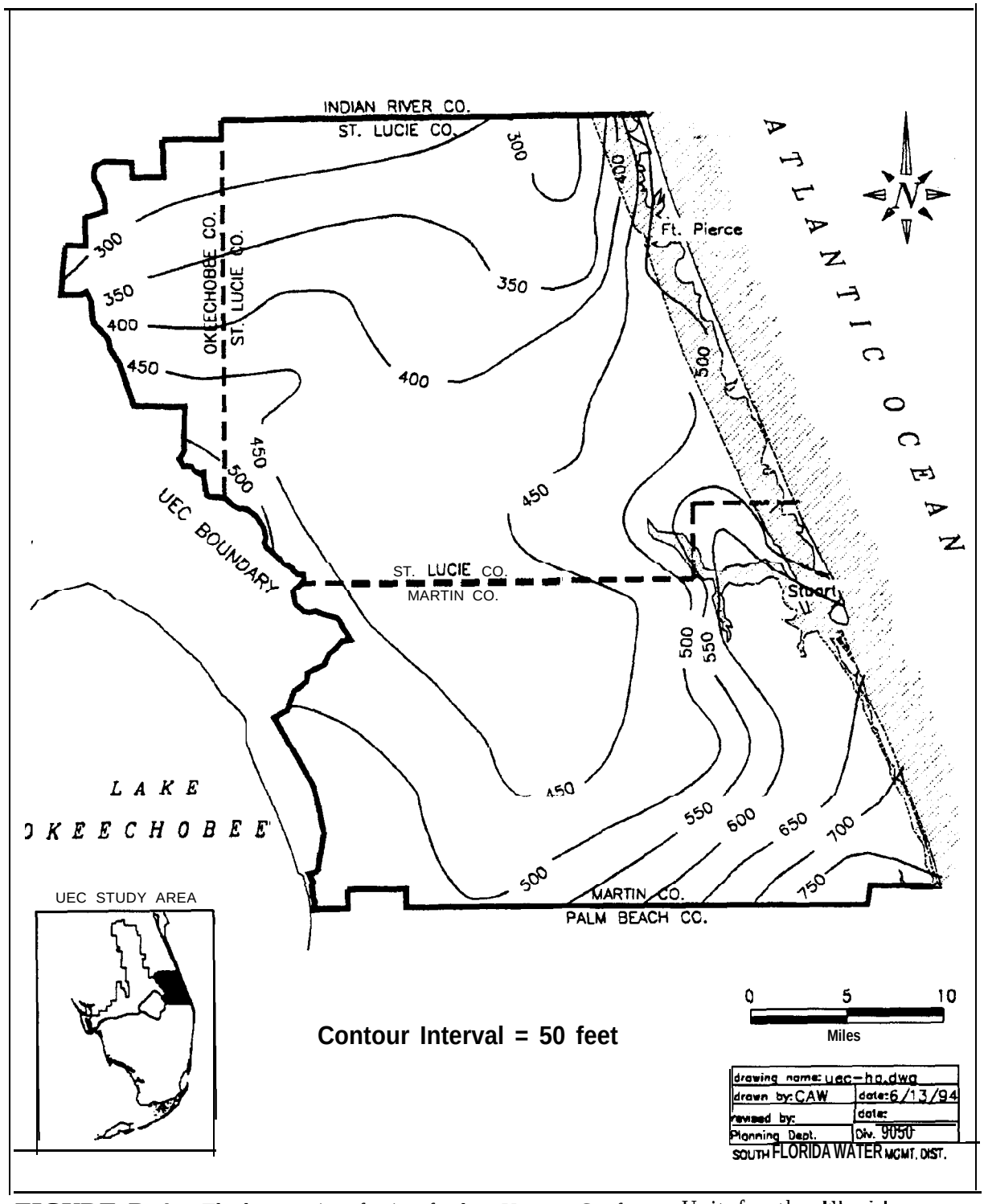


FIGURE D-4. Thickness (in feet) of the Upper Confining Unit for the Floridan Aquifer System (After Lukasiewicz, 1992).

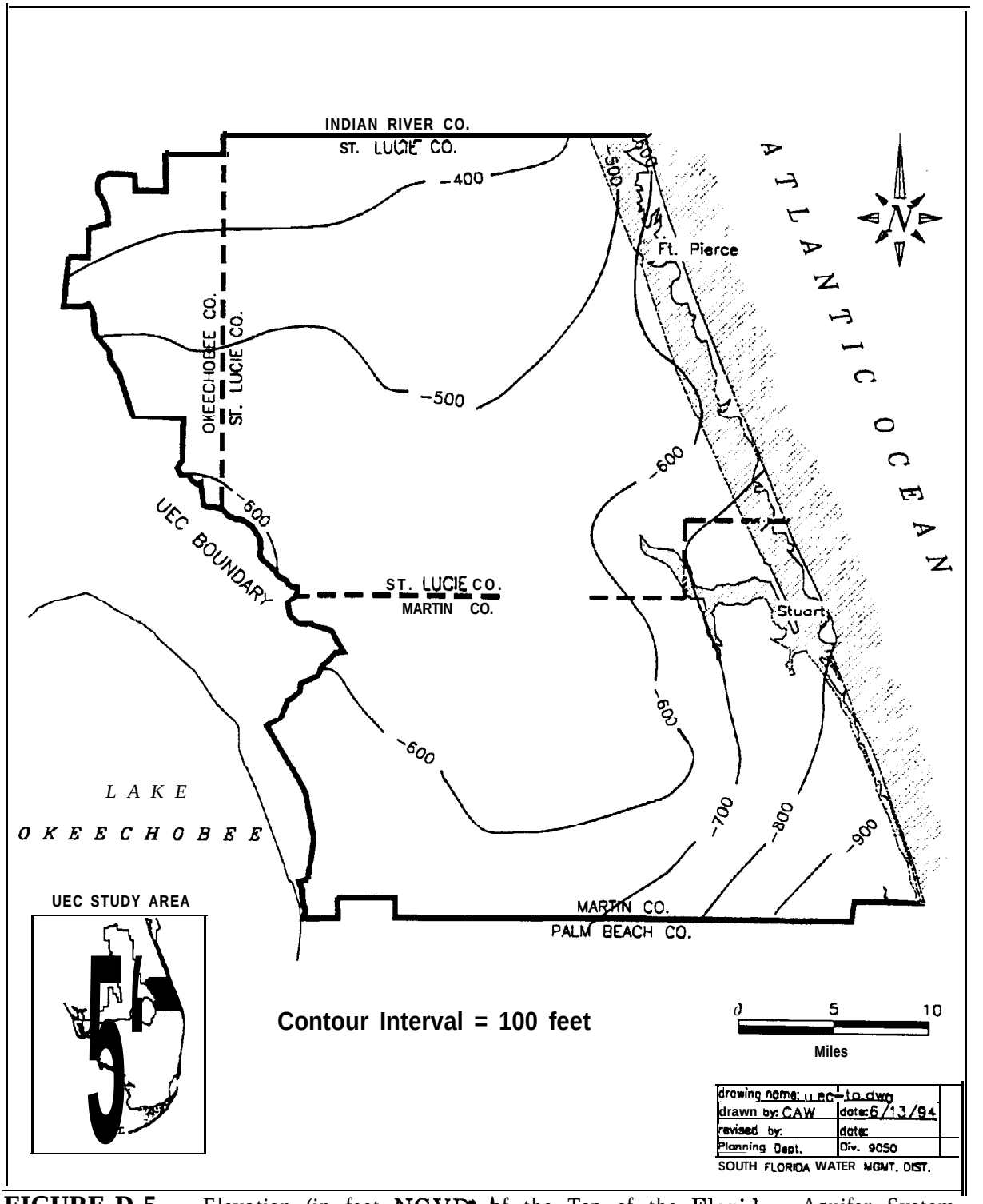


FIGURE D-5. Elevation (in feet NGVD) of the Top of the Floridan Aquifer System (After Lukasiewicz, 1992).

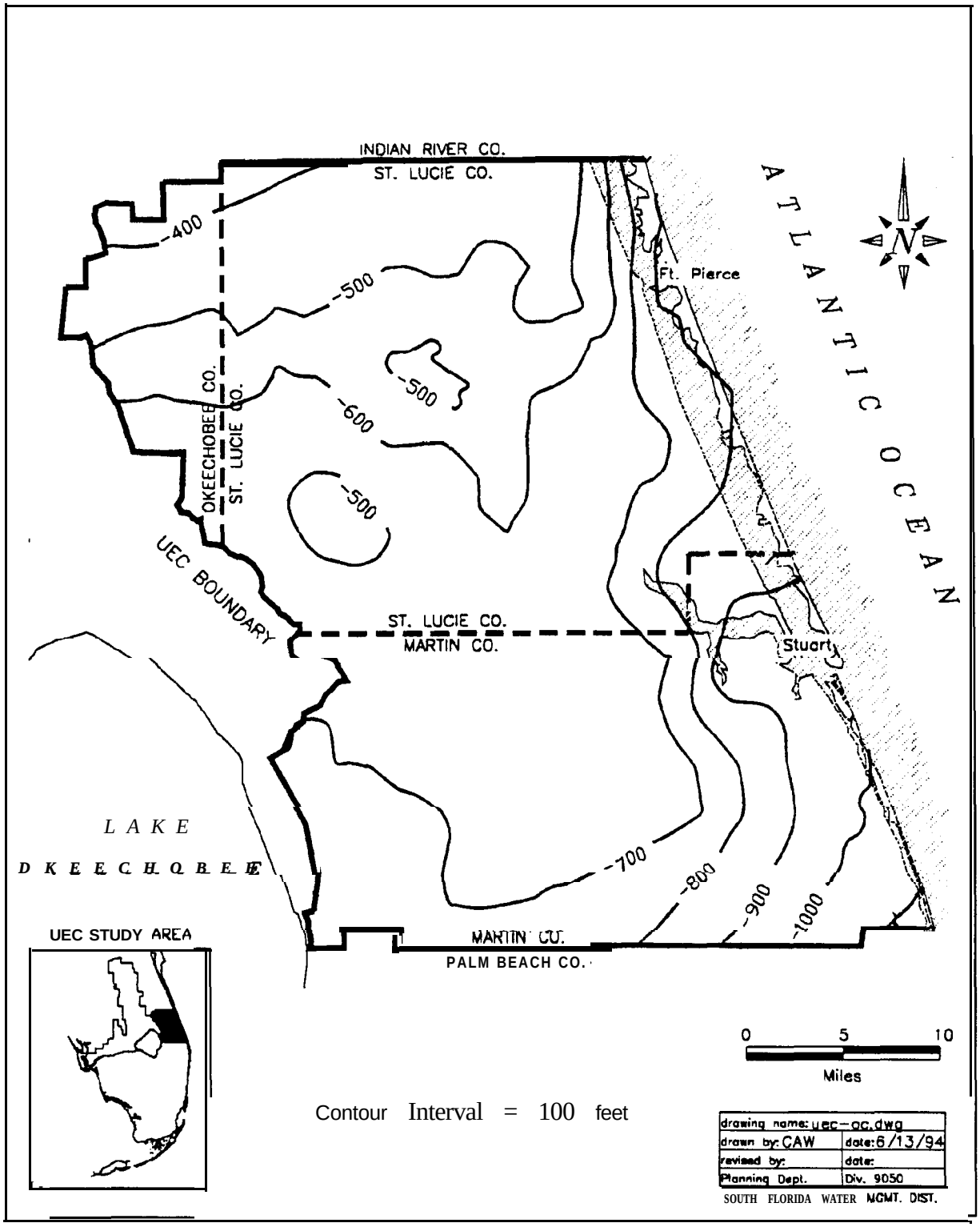


FIGURE D-6. Elevation (in feet NGVD) of the Unconformity Between the Suwannee Formation and the Ocala Group (first continuous flow zone of the Upper Floridan Aquifer) - After Lukasiewicz, 1992.

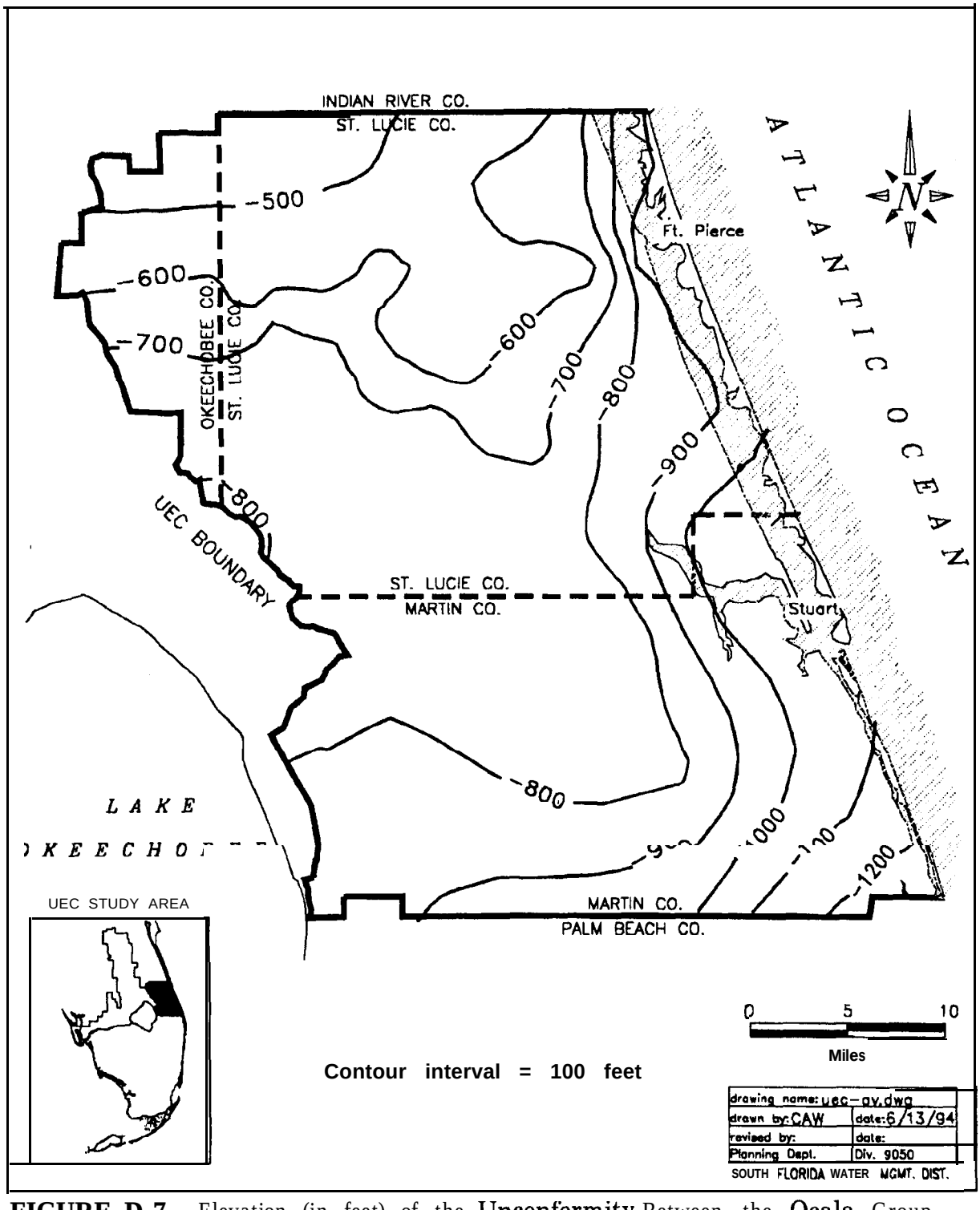


FIGURE D-7. Elevation (in feet) of the Unconformity Between the Ocala Group and the Avon Park Formation (second continuous flow zone of the Upper Floridan Aquifer) - After Lukasiewicz, 1992.

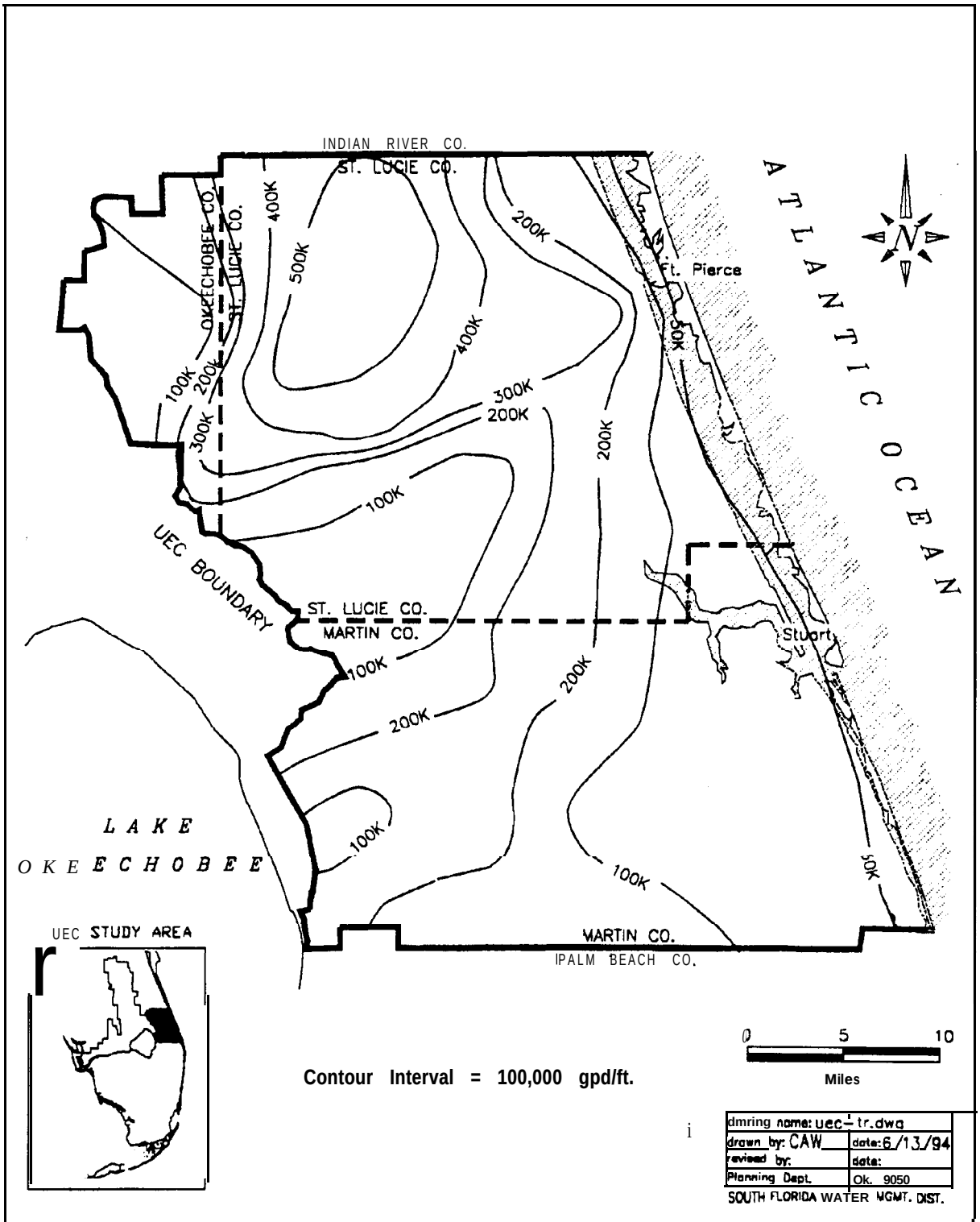


FIGURE D-8. Transmissivity (gpd/ft.) of the Upper Floridan Aquifer (After Lukasiewicz, 1992).

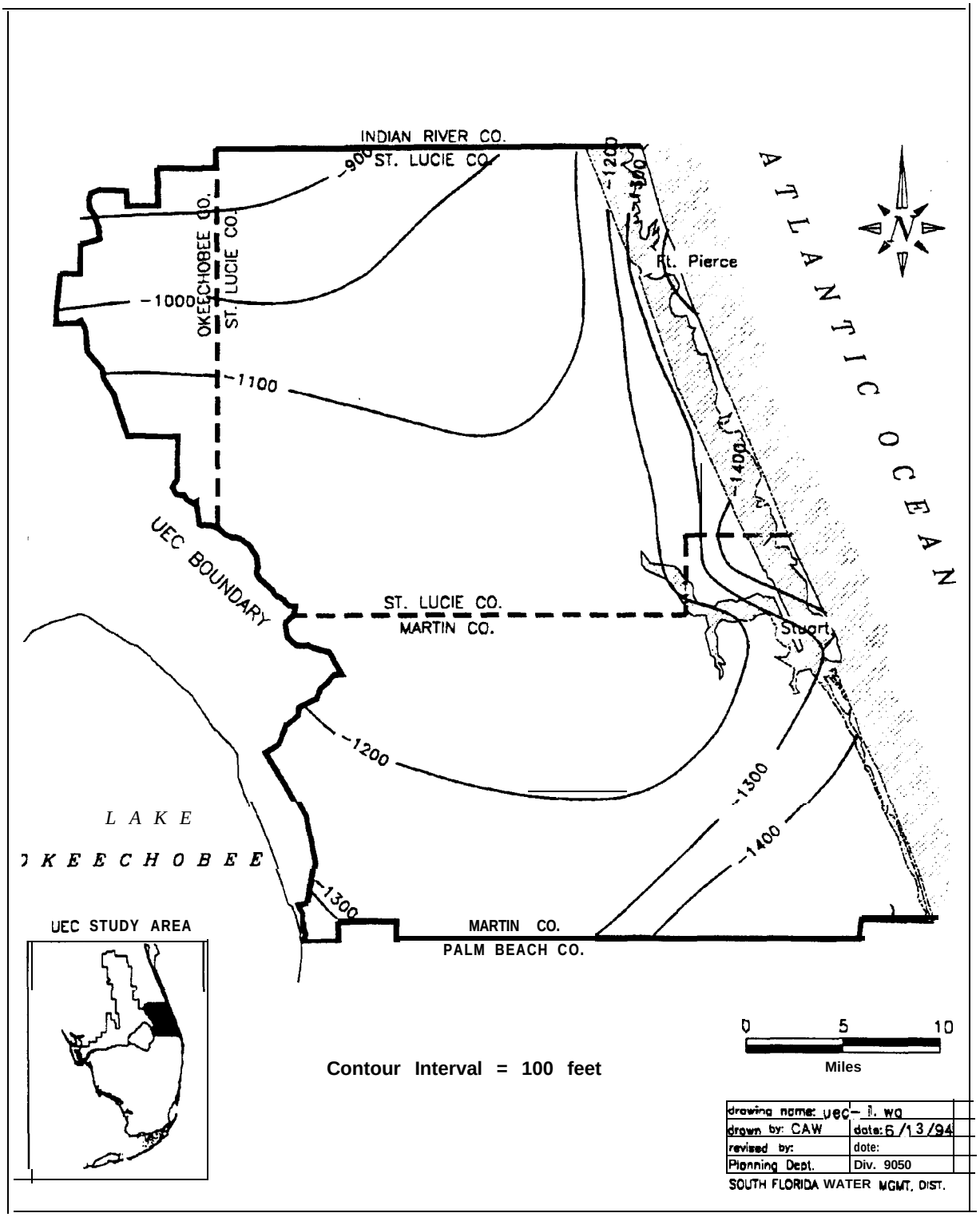


FIGURE D-9. Elevation (in feet NGVD) of the Top of the Lower Floridan Producing Zone 1 (After Lukasiewicz, 1992).

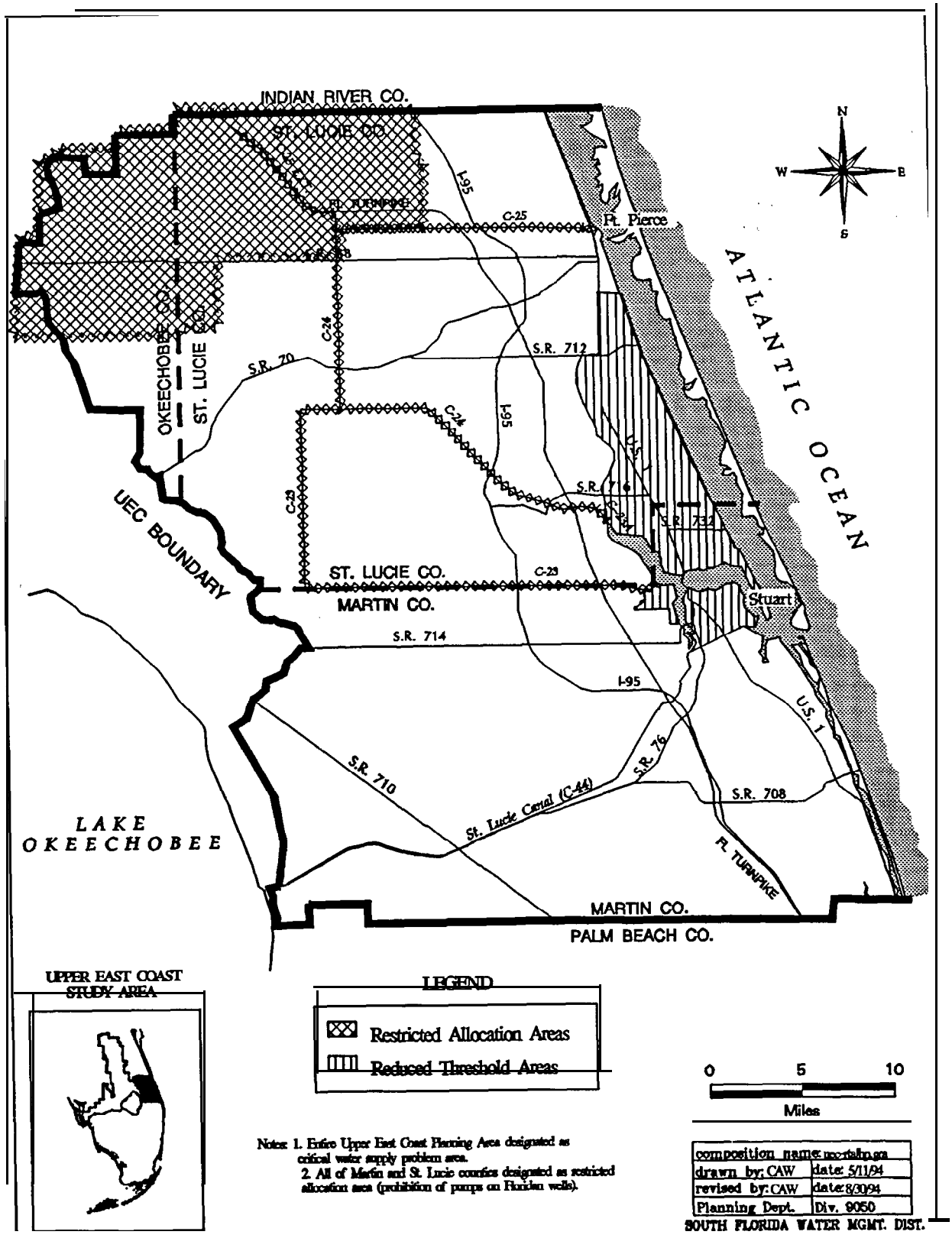
Individual Permit Allocations

TABLE D-2. Individual Permit Allocations in the UEC Planning Area.

Water Use	Allocations (MGD)					Number of Permits			
	Ground Water	Surface Water	Both	Total	% of Total	Ground Water	Surface Water	Both	Total
Martin County									
Agriculture	12.02	115.77	105.88	233.67	84.06	38	26	24	88
Public Water Supply	20.73	0.00	0.00	20.73	7.46	57	0	0	57
Golf	1.27	0.68	6.27	8.22	2.96	4	2	16	22
Landscape	1.53	0.03	4.55	6.11	2.20	33	3	17	53
Dewatering	0.00	0.00	4.98	4.98	1.79	0	0	6	6
industrial	2.6	0.00	0.00	2.6	0.94	8	0	0	8
Nursery	0.29	0.18	0.06	0.53	0.19	5	1	1	7
Recreational	0.00	0.00	0.33	0.33	0.12	1	0	1	2
Aquaculture	0.18	0.00	0.00	0.18	0.06	2	0	0	2
Livestock	0.00	0.00	0.00	0.00	0.00	1	0	0	1
Other	0.00	0.11	0.51	0.62	0.22	0	1	1	2
Total	38.62	116.77	122.58	277.97	100.00	149	33	66	248
St. Lucie County									
Aqriculture	42.7	7.64	251.32	301.66	86.18	143	19	240	402
Public Water Supply	24.93	0.00	0.00	24.93	7.12	86	0	0	86
Golf	1.31	1.46	1.9	4.67	1.33	2	2	6	10
Landscape	0.47	0.38	1.03	1.88	0.54	28	5	5	38
Dewatering	0.09	0.18	13.9	14.17	4.05	1	1	7	9
Industrial	0.91	0.00	0.11	1.02	0.29	5	0	1	6
Nursery	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Recreational	0.00	0.00	1.68	1.68	0.48	0	0	1	1
Aquaculture	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Livestock	0.15	0.00	0.00	0.00	0.00	1	0	0	1
Other	0.01	0.00	0.00	0.01	0.00	1	0	0	1
Total	70.57	9.66	269.94	350.02	100.00	267	27	260	554
Okeechobee Area									
Aqriculture	8.32	0.00	18.49	26.81	99.70	9	0	6	15
Public Water Supply	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Golf	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Landscape	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Dewatering	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Industrial	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Nursery	0.00	0.08	0.00	0.08	0.30	0	1	0	1
Recreational	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Aquaculture	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Livestock	0.00	0.00	0.00	0.00	0.00	0	0	0	0
Other	0.00	0.00	0.00	0.00	.000	0	0	0	0
Total	8.32	0.08	18.49	26.89	100.00	0	1	6	16

TABLE D-2. Individual Permit Allocations (continued).

Water Use	Allocations (MGD)					Number of Permits			
	Ground Water	Surface Water	Both	Total	% of Total	Ground Water	Surface Water	Both	Total
UEC Planning Area									
Agriculture	63.04	123.41	375.69	562.14	85.84	190	45	270	505
Public Water Supply	45.66	0.00	0.00	45.66	6.97	143	0	0	143
Golf	2.58	2.14	8.17	12.89	1.97	6	4	22	32
Landscape	2	0.41	5.58	7.99	1.22	61	8	22	91
Dewatering	0.09	0.18	18.88	19.15	2.92	1	1	13	15
Industrial	3.51	0.00	0.11	3.62	0.55	13	0	1	14
Nursery	0.29	0.26	0.06	0.61	0.09	5	2	1	8
Recreational	0.00	0.00	2.01	2.01	0.31	1	0	2	3
Aquaculture	0.18	0.00	0.00	0.18	0.03	2	0	0	2
Livestock	0.15	0.00	0.00	0.00	0.00	2	0	0	2
Other	0.01	0.11	0.51	0.63	0.10	1	1	1	3
Total	117.51	126.51	411.01	654.88	100.00	425	61	332	818



FIGURED-10. Consumptive Use Permitting Program Specially Designated Areas in the UEC Planning Area.

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Lukasiewicz, J. 1992. A three-dimensional finite difference ground water flow model of the Floridan Aquifer System in Martin, St. Lucie and eastern Okeechobee counties in Florida. Technical Publication 92-03. Department of Research and Evaluation, South Florida Water Management District, West Palm Beach, FL. 292 pp.